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ON THE SYSTEMATICS OF THE MONOPODIAL ORCHIDS II.

BY

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The primary object of this paper is to clarify the circumscription of the genus *Papilionanthe* Schltr. The genus was monotypic until now, mainly because of the lack of understanding of the delimitation given by Schlechter. In addition to *Papilionanthe* new taxonomic changes are proposed in sundry genera, all arranged in alphabetical sequence, following the pattern established in the first contribution published in the Botanical Museum Leaflets, Harvard University 23: 149–212, 1972.

Papilionanthe Schltr. in Orchis 9: 78, July 15, 1915.

Syn.: *Vanda* Sect. *Teretifoliae* Pfitz. in Engl. & Prantl, Natuerl. Pflanzenf. 2, pt. 6: 214, 1889.
Vanda Sect. *Teretivanda* O. Ktze. in Post & Ktze., Lex. Gen. Phan. 584, 1903, *nom. illegit.*

Type: *Dendrobium teres* Roxb.
Aerides Sect. *Phalaenidium* Pfitz. in Engl. & Prantl, Natuerl. Pflanzenf. 2, pt. 6: 217, 1889.

Type: *Aerides Vandarum* Rchb.f.

This genus is characterized by a short, stout, non-pyramidal column, basally extended into a long and prominent foot which is continuous without articulation with the variously 3-lobed lip. The lateral lobes of the

lip are either parallel with or enfolding the column. Pollinia 2, sulcate on broadly triangular to subquadrate stipe; viscidium large. Rostellum elongate.

Plants epiphytic with terete leaves and axillary one- to few-flowered inflorescence. Flowers small to large, often showy.

It is quite surprising that the genus *Papilionanthe* has been ignored entirely in floristic works. Schlechter was justified in separating it from the genus *Vanda* and in determining its intermediary position between *Vanda* and *Aerides*. I have already pointed out (Bot. Mus. Leafl. Harvard Univ. 23: 158, 1972) that the Section *Phalaenidium* of *Aerides* must be combined with the genus *Papilionanthe*. A comparison of the longitudinal sections of the column and lip of *Aerides cylindrica* Lindl. and *Papilionanthe teres* (Roxb.) Schltr. shows them completely identical. As a matter of fact, in columnar structure and in the elongate rostellum, *Papilionanthe* is much closer to *Aerides* than to *Vanda*. Schlechter's precise observations have often been dismissed because he was and still is considered a "great splitter". In my many years of acquaintance with Schlechter's works, I begin to feel quite strongly that the distinction between "splitters" and "lumpers" rests not in one's outlook and approach to the subject of systematics, but rather in one's power of observation of details and the ability of evaluating their significance. The flowers of *Aerides Vandarum* Rchb.f. and *Aerides Biswasianum* Mukerjee have somewhat narrower stipes than are found in other species, but in every other aspect they agree with the circumscription of the genus.

Key to the Species

1. Lateral lobes of lip linear 2
1a. Lateral lobes of lip broad 6
2. Midlobe of lip sessile with a broad base 3
2a. Midlobe of lip with a narrow, cuneate base 4
3. Lip with entire margin except at tip . . . . . *P. tricuspidata*
3a. Lip with a coarsely dentate margin throughout . *P. pedunculata*
4. Stem pendulous; lateral lobes of lip subulate, deeply biparted . . . . . *P. uniflora*
4a. Stem erect to suberect; lateral lobes of lip at most erose-denticulate 5
5. Midlobe of lip deeply cleft, entire; flowers lilac . *P. Biswasiana*
5a. Midlobe of lip biparted, erose-denticulate; flowers white . . . . . *P. Vandarum*
6. Inflorescence longer than leaves; midlobe of lip broadly 3-lobed . . . . . *P. Hookerana*
6a. Inflorescence as long as or shorter than lip; midlobe of lip entire or more or less 3-lobed 7
7. Flowers large, showy; midlobe of lip cuneate-unguiculate, divergingly bilobed . . . . . *P. teres*
7a. Flowers small, not showy; midlobe of lip sessile, entire . . 8
8. Petals wider than sepals . . . . . *P. subulata*
8a. Petals narrower than sepals 9
9. Lateral lobes of lip subquadrate-truncate; midlobe retuse . . . . . *P. Sillemiana*
9a. Lateral lobes and midlobe of lip obtuse 10
10. Inflorescence 2- to 4-flowered, as long as leaves; petals obliquely subspathulate . . . . . *P. flavescens*
10a. Inflorescence 1-flowered, much shorter than leaves; petals sessile . . . . . *P. Greenii*

List of Species

Papilionanthe Biswasiana (Ghose & Mukerjee) Garay, *comb. nov.*

Basionym: *Aerides Biswasiana* Ghose & Mukerjee in Orch. Rev. 53: 124, 1945.

Papilionanthe flavescens (Schltr.) Garay, *comb. nov.*

Basionym: *Aerides flavescens* Schltr. in Fedde Rep. 19: 382, 1924.

Papilionanthe Greenii (W.W.Sm.) Garay, *comb. nov.*

Basionym: *Aerides Greenii* W.W.Sm. in Rec. Bot. Soc. Ind. 4: 271, 1911.

Papilionanthe Hookerana (Rchb.f.) Schltr. in Orchis 9: 80, 1915.

Basionym: *Vanda Hookerana* Rchb.f. in Bonpl. 4: 324, 1856.

Papilionanthe pedunculata (Kerr.) Garay, *comb. nov.*

Basionym: *Aerides pedunculata* Kerr in Journ. Siam. Soc. Nat. Hist. Suppl. 10: 59, 1935.

Syn.: *Vanda Masperoae* Guillaum. in Bull. Mus. Nat. Paris ser. 2, 22: 628, 1951.

Papilionanthe Sillemiana (Rchb.f.) Garay, *comb. nov.*

Basionym: *Thrixspermum Sillemianum* Rchb.f. in Gard. Chron. n.s. 17: 524, 1882.

Syn.: *Aerides Sillemiana* (Rchb.f.) Garay in Bot. Mus. Leafl. Harv. Univ. 23: 159, 1972.

Papilionanthe subulata (Koen.) Garay, *comb. nov.*

Basionym: *Epidendrum subulatum* Koen. in Retz. Obs. Bot. 6: 50, 1791.

Syn.: *Limodorum subulatum* (Koen.) Willd., Sp. Pl. 4: 126, 1805.
Aerides cylindrica Lindl., Gen. and Sp. Orch. Pl. 240, 1833.
Aerides subulata (Koen.) Schltr. in Fedde Rep. 19: 382, 1924, not Lindl. 1833.

Papilionanthe teres (Roxb.) Schltr. in Orchis 9: 78, 1915.

Basionym: *Dendrobium teres* Roxb., Fl. Ind. 3: 485, 1832.

Syn.: *Vanda teres* Lindl., Gen. and Sp. Orch. Pl. 217, 1833.

Papilioanthe tricuspidata (J.J.Sm.) Garay, *comb. nov.*

Basionym: *Vanda tricuspidata* J.J.Sm. in Bull. Jard. Bot. Buitenz. ser. 2, 13: 48, 1914.

Papilionanthe uniflora (Lindl.) Garay, *comb. nov.*

Basionym: *Mesoclastes uniflora* Lindl., Gen. and Sp. Orch. Pl. 45, 1830.

Syn.: *Luisia uniflora* (Lindl.) Bl. in Rumphia 4: 50, 1849.
Aerides longicornu Hook.f., Fl. Br. Ind. 6: 44, 1891.
Aerides uniflora (Lindl.) Summerh. in Kew Bull. 10: 588, 1956.

Papilionanthe Vandarum (Rchb.f.) Garay, *comb. nov.*

Basionym: *Aerides Vandarum* Rchb.f. in Gard. Chron. 997, 1867.

Aërangis Rchb.f. in Flora 48: 190, Apr. 27, 1865.

Type: *Aërangis flabellifolia* Rchb.f.

The characters of this genus have already been discussed in the first paper of this series. Recently I had an opportunity to study live material from Madagascar of *Angraecum calligerum* Rchb.f. which agrees completely with the type collection. For a long time I considered

it to be conspecific with *A. Ellisii* Rchb.f., based on Reichenbach's drawings of both species and have so stated it in Kew Bull. 28: 506, 1974. However, the fresh flowers undoubtedly establish it as a good species due to quite a distinct habit and larger floral segments.

Aërangis calligerum (Rchb.f.) Garay, *comb. nov.*

Basionym: *Angraecum calligerum* Rchb.f. in Gard. Chron. ser. 3, 2: 552, 1887.

Sarcoglyphis Garay in Bot. Mus. Leafl. Harv. Univ. 23: 200, 1972.

Type: *Sarcanthus mirabilis* Rchb.f.

At the time I published the genus *Sarcoglyphis*, *Saccolabium fimbriatum* Ridl. was known to me only through a rather crude drawing by Ridley. Since then I have had the opportunity to examine the holotype specimen and it is undoubtedly referable to *Sarcoglyphis* rather than to *Pennilabium* to which it has been allocated previously.

The characters of the genus *Sarcoglyphis* have already been discussed in the former paper.

Sarcoglyphis fimbriatus (Ridl.) Garay, *comb. nov.*

Basionym: *Saccolabium fimbriatum* Ridl. in Journ. Str. Br. Roy. As. Soc. 54: 52, 1909.

Syn.: *Pennilabium fimbriatum* (Ridl.) Garay in Bot. Mus. Leafl. Harv. Univ. 23: 189, 1972.

Thrixspermum Lour., Fl. Cochinch. 2: 519, Sept. 1790.

Type: *Thrixspermum Centipeda* Lour.

The characters of this genus have already been disdussed in the first paper of this series. An examination of the type of *Sarcochilus tahanensis* Ridl. necessitates the following transfer.

Thrixspermum sarcophyllum Garay, *nom. nov.*

Basionym: *Sarcochilus tahanensis* Ridl., Fl. Malay Penins. 4: 180, 1924, not *Thrixspermum tahanense* Carr, 1930.

Syn.: *Sarcochilus crassifolius* Ridl. in Journ. Fed. Malay. St. Mus. 6: 182, 1915, not Rolfe 1894.

Vandopsis Pfitzer in Engl. & Prantl., Natuerl. Pflanzenf. 2, pt. 6: 210, March 1889.
Type: *Fieldia lissochiloides* Gaud.

This genus is characterized by the short, footless column to which the lip is firmly adnate. Lip geniculately bent, more or less canaliculate, at most gibbous at base. Pollinia 2, deeply sulcate in unequal pairs, more or less sessile on broadly ligulate stipe; gland transverse, prominent. Sepals and petals spreading.

Vanda Parishii Rchb.f. is commonly referred to the genus *Vandopsis*, but because of the elongate and arcuate column, the movable hinged lip and the shape of the pollinia, it must be regarded a genus of its own, *Hygrochilus* Pfitz., as has already been suggested by Pfitzer.

Vandopsis shanica (Phillimore & Smith) Garay, *comb. nov.*

Basionym: *Stauropsis shanica* Phillimore & Smith in Rec. Bot. Soc. Ind. 4: 281, 1911.

Xenikophyton Garay, *gen. nov.*

Etymology: *xenikos* = strange, *phyton* = plant, in reference to the strange admixture of characters from *Cleisomeria* and *Sarcophyton*..

Type: *Saccolabium Smeeanum* Rchb.f.

Sepala petalaque similia, libera; sepalum posticum petalis conniventibus, galeam formantibus; sepala lateralia patentia. Labellum sessile, valde carnosum, basi scrotiforme, apice recurvum, strumosum, ostio subclauso. Columna humilis, crassa, utrinque crasse obtuseque, obscure brachiata; clinandrium valde excavatum, dorsaliter reclinatum; stigma verticale marginatum, anguste ellipticum; rostellum verticale, arrectum, alte bifidum. Anthera mitrata. Pollinia 4, libera, globosa, stipiti lineari, replicatae, sine caudiculis distinctis affixa; glandula satis magna, elliptica.

Epiphytica, erecta; foliis distichis, carnoso-coriaceis, articulatis; vaginis arpophyllaceo-rugosis; inflorescentiis erectis, ramulosis, multifloris; floribus carnosis, minutissimis.

Vegetatively the plants of this genus resemble those of the genus *Cleisomeria*, but the pollinia are very different. It is perhaps closest to the genus *Sarcophyton*, but the lack of a backwall callus immediately separates the two.

The erect, large and prominently bifurcate rostellum and the vertical stigma, resembling the structure found in *Eparmatostigma*, easily identifies this genus.

Xenikophyton Smeeanum (Rchb.f.) Garay, *comb. nov.*

Basionym: *Saccolabium Smeeanum* Rchb.f. in Gard. Chron. ser. 3, 2: 214, 1887.

Syn.: *Rhynchostylis latifolia* Fischer in Kew Bull. 358, 1927.

SWARTZ FLORA INDIAE OCCIDENTALIS

Volume III

BY

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The third volume of Swartz's Flora Indiae Occidentalis is generally accepted to have been published in 1806, because no review of it appears before that date. The evidence presented below strongly suggests that volume 3 was issued at least in two parts: Part 1 comprising pp. 1231 to 1566 and Part 2 comprising pp. 1567 to 2018 plus the index. It is possible that Part 2 was issued in two sections, pp. 1567 to 1758 and pp. 1759 to 2018, because at the bottom on page 1758 the catch word HYME- indicates that another HYMENOPHYLLUM will follow. Yet page 1759 starts with MUSCI FRONDOSI.

Pages 1231–1566 cover descriptions of plants belonging to the Linnaean classes of Diadelphia, Syngenesia